

### Abstract of the Disclosure

Signal light with a specific wavelength is transmitted and extracted from signal light multiplexed by a WDM method, and a light detection unit detects the signal light detected by an optical tunable filter, whose wavelength transmission characteristic varies depending on a control signal. An operation circuit generates information for designating a control signal needed to enable the optical tunable filter to extract signal light with a designated wavelength, based on the detected results of two segments of signal light located at each edge of a wavelength band obtained by shifting the wavelength transmission characteristic of the optical tunable filter from outside the wavelength band including all segments of the entire WDM signal. A driving circuit generates a control signal according to the designation information.